

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A network authentication apparatus comprising:
a network interface unit connected with a network and that transmits/receives a packet;

a packet relay unit that relays a received packet in accordance with a destination address of the received packet; and

a filtering processing unit that extracts one or more of a destination MAC (Media Access Control) address and a destination IPv6 (Internet Protocol version 6) address and a source MAC address, and that extracts only an interface ID part of a source IPv6 address contained in the received packet, and that determines whether to relay the received packet to the packet relay unit or discard the packet in accordance with:

one or more of ~~a destination~~ the destination MAC ~~(Media Access Control)~~ address and ~~a destination~~ the destination IPv6 ~~(Internet Protocol version 6)~~ address and ~~a source~~ the source MAC address; and

only the interface ID part of the source IPv6 address extracted from a source IPv6 interface ID, contained in the received packet.

2. (canceled)

3. (currently amended): The network authentication apparatus as claimed in claim 1,

wherein the filtering processing unit further comprises:

a filtering information storage unit that stores at least one or more of the destination MAC address and the destination IPv6 address and the source MAC address, that stores ~~the source IPv6 interface ID~~ the interface ID part of the source IPv6 address, and that stores judgment information representing whether to relay or discard, in association with each other; and

a processing unit that compares:

(a) one or more of the destination MAC address and the destination IPv6 address and the source MAC address, and (b) ~~the source IPv6 interface ID~~ only the interface ID part of the source IPv6 address ~~contained in~~ extracted from the received packet with (a) one or more of the destination MAC address and the destination IPv6 address and the source MAC address, and (b) ~~the source IPv6 interface ID~~ only the interface ID part of the source IPv6 address stored in the filtering information storage unit,

wherein when the addresses and ~~IDs~~ ID parts match with each other, determining whether to relay the received packet to the packet relay unit or discard the packet in accordance with the judgment information associated with (a) one or more of the destination MAC address ~~or~~ and the destination IPv6 address and the source MAC address, and (b) ~~the source IPv6 interface ID~~ the interface ID part of the source IPv6 address.

4. (currently amended): The network authentication apparatus as claimed in claim 1,

wherein the filtering processing unit comprises:

a MAC filtering unit that determines whether to relay the received packet to the packet relay unit or discard the packet in accordance with the destination MAC address and the source MAC address contained in the received packet; and

an IP filtering unit that determines whether to relay the received packet to the packet relay unit or discard the packet in accordance with the destination MAC address and ~~the source IPv6 interface ID~~ only the interface ID part of the source IPv6 address ~~contained in~~ extracted from the received packet.

5. (currently amended): The network authentication apparatus as claimed in claim 4,

wherein the filtering processing unit further comprises:

a filtering information storage unit that stores at least the destination MAC address and ~~the source MAC address or the source IPv6 interface ID~~ only the interface ID part of the source IPv6 address and the judgment information representing whether to relay or discard, in association with each other.

6. (currently amended): The network authentication apparatus as claimed in claim 4,

wherein the MAC filtering unit further comprises:

a MAC filtering information storage unit that stores the destination MAC address and the source MAC address and the judgment information representing whether to relay or discard, in association with each other; and

wherein the IP filtering unit further comprises:

an IP filtering information storage unit that stores the destination MAC address and ~~the source IPv6 interface ID~~ only the interface ID part of the source IPv6 address and the judgment information representing whether to relay or discard, in association with each other.

7. (currently amended): The network authentication apparatus as claimed in claim 6,

wherein the MAC filtering unit compares the destination MAC address and the source MAC address contained in the received packet with the destination MAC address and the source MAC address stored in the MAC filtering information storage unit, and when the addresses match with each other, determines whether to relay the received packet to the packet relay unit or discard the packet in accordance with the judgment information associated with the destination MAC address and the source MAC address, and

wherein the IP filtering unit compares the destination MAC address and ~~the source IPv6 interface ID~~ only the interface ID part of the source IPv6 address contained in the received packet with the destination MAC address and ~~the source IPv6 interface ID~~ only the interface ID part of the source IPv6 address stored in the IP filtering information storage unit, and when the addresses and interface ~~IDs~~ ID parts match with each other, determines whether to relay the received packet to the packet relay unit or discard the packet in accordance with the judgment information associated with the destination MAC address and ~~the source IPv6 interface ID~~ only the interface ID part of the source IPv6 address.

8. (currently amended): The network authentication apparatus as claimed in claim 1, further comprising:

an authentication unit that receives an authentication request from an arbitrary information terminal device connected to the network interface unit via a network, and that executes ~~executing~~ authentication based on predetermined information received from ~~related to~~ the arbitrary information terminal device.

9. (currently amended): The network authentication apparatus as claimed in claim 8,

wherein the authentication unit comprises an authentication information storage unit that stores a user ID, password, and ~~IPv6 interface ID~~ only the interface ID part of the source IPv6 address or MAC address, in association with each other, and performs authentication by comparing a user ID, password, and ~~IPv6 interface ID~~ only the interface ID part of the source IPv6 address or MAC address received from the arbitrary information terminal device with the user ID, password, and ~~IPv6 interface ID~~ only the interface ID part of the source IPv6 address or MAC address stored in the authentication information storage unit.

10. (previously presented): The network authentication apparatus as claimed in claim 1, further comprising:

a security control unit that generates or exchanges a key for packet encryption or decoding for each communication counterpart, using a key exchange protocol; and

a security processing unit that executes authentication of at least the received packet, using the key generated by the security control unit.

11. (currently amended): A network authentication system comprising:
an authentication server that receives an authentication request from an
arbitrary information terminal device connected via a network, and that executes
executing authentication based on predetermined information received from related
to the arbitrary information terminal device; and

a network node device connected to the network and that relays a packet
received from the network,

wherein the network node device comprises:

a network interface unit connected with the network and that
transmits/receives a packet;

a packet relay unit that relays a received packet in accordance with a
destination address of the received packet; and

a filtering processing unit that extracts one or more of a destination MAC
(Media Access Control) address and a destination IPv6 (Internet Protocol version 6)
address and a source MAC address, and that extracts only an interface ID part of a
source IPv6 address contained in the received packet, and that determines whether
to relay the received packet to the packet relay unit or discard the packet in
accordance with:

one or more of ~~a destination~~ the destination MAC (Media Access Control)
address and ~~a destination~~ the destination IPv6 (Internet Protocol version 6) address
and ~~a source~~ the source MAC address; and

only the interface ID part of the source IPv6 address ~~a source IPv6 interface~~
~~ID, contained in~~ received from the received packet,

wherein the filtering processing unit determines a condition for a determination of whether to relay or to discard based on the authentication result by the authentication server, and

wherein the filtering processing unit relays only a packet addressed to the authentication server to the packet relay unit, of packets sent from an arbitrary information terminal device that is not authenticated by the authentication server.

12. (currently amended): The network authentication system as claimed in claim 11,

wherein the filtering processing unit of the network node device further comprises:

a filtering information storage unit that stores at least one or more of the destination MAC address and the destination IPv6 address and the source MAC address, that stores ~~the source IPv6 interface ID~~ the interface ID part of the source IPv6 address, and that stores judgment information representing whether to relay or discard in association with each other; and

a processing unit that compares:

(a) one or more of the destination MAC address and the destination IPv6 address and the source MAC address (b) ~~the source IPv6 interface ID~~ only the interface ID part of the source IPv6 address ~~contained in~~ extracted from the received packet with (a) one or more of the destination MAC address and the destination IPv6 address and the source MAC address and (b) ~~the source IPv6 interface ID~~ only the interface ID part of the source IPv6 address stored in the filtering information storage unit,

wherein when the addresses and ~~IDs~~ID parts match with each other, determining whether to relay the received packet to the packet relay unit or discard the packet in accordance with the judgment information associated with (a) one or more of the destination MAC address ~~or~~ and the destination IPv6 address and the source MAC address and (b) ~~the source IPv6 interface ID~~the interface ID part of the source IPv6 address.

13. (currently amended): The network authentication system as claimed in claim 12,

wherein the authentication server includes an instruction issuing unit that adds an instruction of the arbitrary information terminal device when the arbitrary information terminal device is authenticated,

wherein the network node device includes a change unit that newly registers ~~the IPv6 interface ID~~ only the interface ID part of the source IPv6 address of the arbitrary information terminal device as the ~~source IPv6 interface ID~~ part of the source IPv6 address into the filtering information storage unit together with the judgment information representing relay in accordance with an instruction from the authentication server, and

wherein the filtering processing unit relays a packet sent from the arbitrary information terminal device authenticated by the authentication server, to the packet relay unit.

14. (currently amended): The network authentication system as claimed in claim 11,

wherein the filtering processing unit of the network node device further comprises:

a MAC filtering unit that determines whether to relay the received packet to the packet relay unit or discard the packet in accordance with the destination MAC address and the source MAC address contained in the received packet; and

an IP filtering unit that determines whether to relay the received packet to the packet relay unit or discard the packet in accordance with the destination MAC address and the ~~source IPv6 interface ID~~only interface ID part of the source IPv6 address contained in the received packet.

15. (currently amended): The network authentication system as claimed in claim 14,

wherein the filtering processing unit of the network node device further comprises:

a filtering information storage unit that stores at least the destination MAC address, and the source MAC address or the ~~source IPv6 interface ID~~only the interface ID part of the source IPv6 address, and judgment information representing relay or discard in association with each other,

wherein the MAC filtering unit compares the destination MAC address and the source MAC address contained in the received packet with the destination MAC address and the source MAC address stored in the filtering information storage unit, and when the addresses match with each other, determines whether to relay the received packet to the packet relay unit or discard the packet in accordance with the judgment information associated with the destination MAC address and the source MAC address, and

wherein the IP filtering unit compares the destination MAC address and the source ~~IPv6 interface ID~~only the interface ID part of the source IPv6 address contained in the received packet with the destination MAC address and the source ~~IPv6 interface ID~~only the interface ID part of the source IPv6 address stored in the filtering information storage unit, and

wherein when the addresses and interface ~~IDs~~ID parts match with each other, determines whether to relay the received packet to the packet relay unit or discard the packet in accordance with the judgment information associated with the destination MAC address and the source ~~IPv6 interface ID~~only the interface ID part of the source IPv6 address.

16. (currently amended): A switch network apparatus comprising:
plural network interface units connected with a network and
~~transmitting/receiving that transmit/receive~~ packets;

a packet switch~~relay~~ unit that relays a received packet between the plural network interface units in accordance with a destination address of the received packet; and

a filtering processing unit that extracts one or more of a destination MAC (Media Access Control) address and a destination IPv6 (Internet Protocol version 6) address and a source MAC address, and that extracts only an interface ID part of a source IPv6 address contained in the received packet, and that determines whether to relay the received packet to the packet switch unit or discard the packet in accordance with:

one or more of a destination MAC address and ~~a destination~~the destination IPv6 address and ~~a source~~the source MAC address; and

only the interface ID part of the source IPv6 address ~~a source IPv6 interface~~
~~ID, contained in~~ extracted from the received packet; and

an authentication unit that executes authentication based on predetermined
information received from an arbitrary information terminal device connected to one
of the network interface units via the network,

wherein the filtering processing unit determines a condition for a
determination of whether to relay or discard based on the authentication result by the
authentication unit.